Amendments to the Claims:

1. (previously amended) A system for lossless progressive streaming of images over a communication network, comprising:

an image storage device for storing a digital image;

a client computer coupled to the communication network, wherein said client computer generates and transmits across said communication network a request list containing the coordinates of data blocks required for rendering a region of interest (ROI) within said digital image, wherein said request list is ordered in accordance with a selected progressive mode;

a server computer coupled to said communication network and said image storage device, said server computer adapted to perform the steps of:

preprocessing said digital image through a lossless wavelet transformation;

receiving said request list from said client computer; and

progressively transmitting to said client computer data blocks corresponding to said region of interest in the order they were requested.

2. (original) The system of claim 1, wherein the server computer progressively transmits the region of interest to a selected quality threshold.

3. (original) The system of claim 1, wherein the server computer progressively transmits the region of interest to lossless quality.

4. (original) The system of claim 1, wherein the client computer reverse transforms the region of interest received from the server computer, to form a lossless reproduction of the digital image.

5. (original) The system of claim 4, wherein client computer displays the lossless reproduction of the digital image on a web browser resident on the client computer.

6. (previously amended) The system of claim 1, wherein the server computer performs the pre-processing step through a lossless wavelet transformation comprising [[two]] non-identical one-dimensional transforms.

7. (currently amended) A system for lossless progressive streaming of images over a communication network, comprising:

an image storage device for storing a digital image;

a client computer coupled to the communication network, wherein said client computer generates and transmits across said communication network a request list containing the coordinates of data blocks required for rendering a region of interest (ROI) within said digital image, wherein said request list is ordered in accordance with a selected progressive mode;

a server computer coupled to said communication network and said image storage device, said server computer adapted to perform the steps of:

preprocessing said digital image through a low pass filter and a lossless wavelet transform to yield low pass scaling function data, high pass wavelet coefficient data and halfbit data;

receiving said request list from said client computer; and

progressively transmitting to said client computer subband coefficient data blocks corresponding to said region of interest in the order they were requested, said subband coefficient data blocks defined by said coordinates and determined in accordance with said wavelet coefficients and said half-bit matrix.

8. (original) The system of claim 7, wherein the server computer progressively transmits the region of interest to a selected quality threshold.

9. (original) The system of claim 7, wherein the server computer progressively transmits the region of interest to lossless quality.

10. (original) The system of claim 7, wherein the client computer reverse transforms the region of interest received from the server computer, to form a lossless reproduction of the digital image.

11. (original) The system of claim 10, wherein client computer displays the lossless reproduction of the digital image on a web browser resident on the client computer.

12. (original) The system of claim 7, wherein the server computer performs the pre-processing step through a lossless wavelet transformation comprising two non-identical one-dimensional transforms.

13. (previously amended) A method for use on a client computer for lossless progressive streaming of images from a server computer to said client computer over a communication network, said method comprising the steps of:

determining one or more data blocks required for rendering of a region of interest (ROI) within said digital image;

generating a request list of coordinates corresponding to said data blocks, wherein said request list is ordered in accordance with a selected progressive mode;

transmitting said request list to said server computer;

receiving said data blocks from said server computer; and

rendering said region of interest utilizing said data blocks.

14. (original) The method of claim 13, wherein the server computer progressively transmits the region of interest to a selected quality threshold.

15. (original) The method of claim 13, wherein the server computer progressively transmits the region of interest to lossless quality.

16. (original) The method of claim 13, further comprising the step of reverse transforming at the client computer the region of interest received from the server computer, to form a lossless reproduction of the digital image.

17. (original) The method of claim 16, further comprising the step of displaying at the client computer the lossless reproduction of the digital image on a web browser resident on the client computer.

18. (original) The method of claim 13, wherein the pre-processing step is performed through a lossless wavelet transformation comprising two non-identical one-dimensional transforms.

19. (previously amended) A method for use on a client computer for lossless progressive streaming of images from a server computer to said client computer over a communication network, said method comprising the steps of:

determining one or more data blocks required for rendering of a region of interest (ROI) within said digital image;

generating a request list of coordinates corresponding to said data blocks, wherein said request list is ordered in accordance with the absolute value of requested subband coefficients whereby subband coefficients with larger absolute values are requested before subband coefficients with smaller absolute values;

transmitting said request list to said server computer;

receiving said data blocks from said server computer; and

rendering said region of interest utilizing said data blocks.

20. (original) The method of claim 19, wherein the server computer progressively transmits the region of interest to a selected quality threshold.

21. (original) The method of claim 19, wherein the server computer progressively transmits the region of interest to lossless quality.

22. (original) The method of claim 19, further comprising the step of reverse transforming at the client computer the region of interest received from the server computer, to form a lossless reproduction of the digital image.

23. (original) The method of claim 22, further comprising the step of displaying at the client computer the lossless reproduction of the digital image on a web browser resident on the client computer.

24. (previously amended) The method of claim 19, wherein the pre-processing step is performed through a lossless wavelet transformation comprising [[two]] non-identical one-dimensional transforms.

25. (previously amended) A server for lossless progressive streaming of images to a client over a communication network, comprising:

an image storage device for storing said digital image;

a processor adapted to perform the steps of:

preprocessing said digital image through a lossless wavelet transformation;

receiving said request list from said client, wherein said request list is ordered in accordance with a selected progressive mode; and

progressively transmitting to said client data blocks corresponding to said region of interest in the order they were requested.

26.(previously amended) The server according to claim 25, wherein the server computer progressively transmits the region of interest to a selected quality threshold.

27. (previously amended) The server according to claim 25, wherein the server computer progressively transmits the region of interest to lossless quality.

28. (previously amended) The server according to claim 25, wherein the client computer reverse transforms the region of interest received from the server computer, to form a lossless reproduction of the digital image.

29. (previously amended) The server according to claim 28, wherein client computer displays the lossless reproduction of the digital image on a web browser resident on the client computer.

30. (previously amended) The server according to claim 25, wherein the server computer performs the pre-processing step through a lossless wavelet transformation comprising two non-identical one-dimensional transforms.

31. (previously amended) A server for lossless progressive streaming of images to a client over a communication network, comprising:

an image storage device for storing said digital image;

a processor adapted to perform the steps of:

preprocessing said digital image through a lossless wavelet transformation;

generating wavelet coefficients corresponding to said digital image;

receiving said request list from said client computer, wherein said request list is ordered in accordance with the absolute value of requested subband coefficients whereby subband coefficients with larger absolute values are requested before subband coefficients with smaller absolute values; and

progressively transmitting to said client computer subband coefficient data blocks corresponding to said region of interest in the order they were requested, said subband coefficient data blocks defined by said coordinates and determined in accordance with said wavelet coefficients.

32. (previously amended) The server according to claim 31, wherein the server computer progressively transmits the region of interest to a selected quality threshold.

33. (previously amended) The server according to claim 31, wherein the server computer progressively transmits the region of interest to lossless quality.

34. (previously amended) The server according to claim 31, wherein the client computer reverse transforms the region of interest received from the server computer, to form a lossless reproduction of the digital image.

35. (previously amended) The server according to claim 34, wherein client computer displays the lossless reproduction of the digital image on a web browser resident on the client computer.

36. (previously amended) The server according to claim 31, wherein the server computer performs the pre-processing step through a lossless wavelet transformation comprising two non-identical one-dimensional transforms.

37. (new) The system of claim 1, wherein said selected progressive mode comprises progressive by quality whereby said request list is ordered in accordance with the absolute value of requested subband coefficients such that subband coefficients with largest absolute values are requested before subband coefficients with smaller absolute values.

38. (new) The system of claim 37, wherein in each layer of precision the order of data block requests is according to resolution whereby low resolution coefficient data blocks are requested first and highest resolution coefficient data blocks are requested last.

39. (new) The system of claim 1, wherein said selected progressive mode comprises progressive by resolution whereby lower resolution data blocks are requested before higher resolution data blocks.

40. (new) The system of claim 1, wherein said selected progressive mode comprises progressive by spatial order whereby data blocks are requested from top to bottom.

41. (new) A system for lossless progressive streaming of images over a communication network, comprising:

an image storage device for storing a digital image;

a client computer coupled to the communication network, wherein said client computer generates and transmits across said communication network a request list containing the coordinates of data blocks required for rendering a region of interest (ROI) within said digital image, wherein said request list is ordered in accordance with the absolute value of requested subband coefficients whereby subband coefficients with larger absolute values are requested before subband coefficients with smaller absolute values;

a server computer, coupled to said communication network and said image storage device, adapted to perform the steps of:

preprocessing the digital image through a lossless wavelet transformation;

receiving said request list from said client computer; and

progressively transmitting to said client computer data blocks corresponding to said region of interest in the order they were requested.

42. (new) The system of claim 7, wherein said selected progressive mode comprises progressive by quality whereby said request list is ordered in accordance with the absolute value of requested subband coefficients such that subband coefficients with largest absolute values are requested before subband coefficients with smaller absolute values.

43. (new) The system of claim 7, wherein said selected progressive mode comprises progressive by resolution whereby lower resolution data blocks are requested before higher resolution data blocks.

44. (new) The system of claim 7, wherein said selected progressive mode comprises progressive by spatial order whereby data blocks are requested from top to bottom.

45. (new) The method according to claim 13, wherein said selected progressive mode comprises progressive by quality whereby said request list is ordered in accordance with the absolute value of requested subband coefficients such that subband coefficients with largest absolute values are requested before subband coefficients with smaller absolute values.

46. (new) The method according to claim 13, wherein said selected progressive mode comprises progressive by resolution whereby lower resolution data blocks are requested before higher resolution data blocks.

47. (new) The method according to claim 13, wherein said selected progressive mode comprises progressive by spatial order whereby data blocks are requested from top to bottom.

48. (new) The server according to claim 25, wherein said selected progressive mode comprises progressive by quality whereby said request list is ordered in accordance with the absolute value of requested subband coefficients such that subband coefficients with largest absolute values are requested before subband coefficients with smaller absolute values.

49. (new) The server according to claim 25, wherein said selected progressive mode comprises progressive by resolution whereby lower resolution data blocks are requested before higher resolution data blocks.

50. (new) The server according to claim 25, wherein said selected progressive mode comprises progressive by spatial order whereby data blocks are requested from top to bottom.

51. (new) A server for lossless progressive streaming of images to a client over a communication network, comprising:

an image storage device for storing a digital image;

a processor in communication with said image storage device and adapted to perform the steps of:

preprocessing said digital image through a low pass filter and a lossless wavelet transform a predetermined number of times to yield low pass scaling function data, high pass wavelet coefficient data and halfbit data;

storing said low pass scaling function data, said high pass wavelet coefficient data and said halfbit data in a memory cache;

receiving a request for one or more data blocks from said client, each data block corresponding to a region of interest;

if a requested data block is not present in said memory cache, performing said step of preprocessing on a minimum portion of the region of interest requiring processing; and

transmitting to said client computer subband coefficient data blocks corresponding to said region of interest.

52. (new) A 2D wavelet transform method for use on a server for providing lossless progressive streaming of images to a client over a communication network, said server in communication with an image storage device for storing digital images, said method comprising the steps of:

first applying an X-direction wavelet transform to a digital image to yield a temporal matrix therefrom;

second applying a low Y-direction wavelet transform to a low portion of said temporal matrix to yield LL and LH subband coefficients; and

third applying a high Y-direction wavelet transform to a high portion of said temporal matrix to yield HL and HH subband coefficients including a half-bit matrix containing half-bits, each half-bit corresponding to an HH subband coefficient.

53. (new) The method according to claim 52, wherein said X-direction wavelet transform comprises

$$\begin{cases} s(n)=\left\lfloor \dfrac{x(2n)+x(2n+1)}{2} \right\rfloor, \\ d(n)=x(2n+1)-x(2n). \end{cases}$$

wherein x(n) is the original image; s(n) is a low resolution version of x(n) and d(n) represents the difference between s(n) and x(n).

54. (new) The method according to claim 52, wherein said low Y-direction wavelet transform comprises

$$\begin{cases} s(n)=x(2n)+x(2n+1), \\ d^{(1)}(n)=\left\lfloor \dfrac{x(2n+1)-x(2n)}{2} \right\rfloor, \\ d(n)=2d^{(1)}(n). \end{cases}$$

wherein x(n) is the original image; s(n) is a low resolution version of x(n), and d(n) and $d^{(1)}(n)$ represent differences between s(n) and x(n).

55. (new) The method according to claim 54, wherein bits able to be known a priori to a decoder are not encoded.

56. (new) The method according to claim 54, wherein the least significant bit of d(n) is always zero and not encoded.

57. (new) The method according to claim 52, wherein said high Y-direction wavelet transform comprises

$$\begin{cases} d^{(1)}(n)=x(2n+1)-x(2n), \\ HalfBit(n)=\left(d^{(1)}(n)\right) \bmod 2, \\ d(n)=\left\lfloor \dfrac{d^{(1)}(n)}{2} \right\rfloor, \\ s(n)=x(2n)+d(n). \end{cases}$$

wherein x(n) is the original image; s(n) is a low resolution version of x(n), d(n) and $d^{(1)}(n)$ represent differences between s(n) and x(n) and *HalfBit*(*n*) represents said half-bits.

58. (new) The method according to claim 52, wherein said X-direction wavelet transform comprises

$$\begin{cases} s(n)=\left\lfloor \dfrac{x(2n)+x(2n+1)}{2} \right\rfloor, \\ d^{(1)}(n)=x(2n+1)-x(2n), \\ d(n)=d^{(1)}(n)+\left\lfloor \dfrac{s(n-1)-s(n+1)}{4} \right\rfloor. \end{cases}$$

wherein x(n) is the original image; s(n) is a low resolution version of x(n), and d(n) and $d^{(1)}(n)$ represent differences between s(n) and x(n).

59. (new) The method according to claim 52, wherein said low Y-direction wavelet transform comprises

$$\begin{cases} s(n)=x(2n)+x(2n+1), \\ d^{(1)}(n)=\left\lfloor \dfrac{x(2n+1)-x(2n)+\left\lfloor \dfrac{s(n-1)-s(n+1)}{8} \right\rfloor}{2} \right\rfloor, \\ d(n)-2d^{(1)}(n). \end{cases}$$

wherein x(n) is the original image; s(n) is a low resolution version of x(n), and d(n) and $d^{(1)}(n)$ represent differences between s(n) and x(n).

60. (new) The method according to claim 59, wherein bits able to be known a priori to a decoder are not encoded.

61. (new) The method according to claim 59, wherein the least significant bit of d(n) is always zero and not encoded.

62. (new) The method according to claim 52, wherein said high Y-direction wavelet transform comprises

$$\begin{cases} s(n)=\left\lfloor \dfrac{x(2n)+x(2n+1)}{2} \right\rfloor, \\ d^{(1)}(n)=x(2n+1)-x(2n), \\ d^{(2)}(n)=d^{(1)}(n)+\left\lfloor \dfrac{s(n-1)-s(n+1)}{4} \right\rfloor, \\ d(n)=\left\lfloor \dfrac{d^{(2)}(n)}{2} \right\rfloor, \\ HalfBit(n)=d^{(2)}(n) \bmod 2. \end{cases}$$

wherein x(n) is the original image; s(n) is a low resolution version of x(n), d(n) and $d^{(1)}(n)$ represent differences between s(n) and x(n) and *HalfBit*(*n*) represents said half-bits.

63. (new) The system according to claim 7, wherein said lossless wavelet transform comprises the steps of:

first applying an X-direction wavelet transform to the output of said low pass filter to yield a temporal matrix therefrom;

second applying a low Y-direction wavelet transform to a low portion of said temporal matrix to yield LL and LH subband coefficients; and

third applying a high Y-direction wavelet transform to a high portion of said temporal matrix to yield HL and HH subband coefficients including a half-bit matrix containing half-bits, each half-bit corresponding to an HH subband coefficient.

64. (new) The server according to claim 51, wherein said lossless wavelet transform comprises the steps of:

first applying an X-direction wavelet transform to the output of said low pass filter to yield a temporal matrix therefrom;

second applying a low Y-direction wavelet transform to a low portion of said temporal matrix to yield LL and LH subband coefficients; and

third applying a high Y-direction wavelet transform to a high portion of said temporal matrix to yield HL and HH subband coefficients including a half-bit matrix containing half-bits, each half-bit corresponding to an HH subband coefficient.